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C

An Extension of Selected Total Investment and Wealth Estimates through 1973.

As this manuscript was going to press the author had occasion to update key estimates through 1973 in a paper for the Joint Economic Committee of Congress.¹ The summary tables from the Joint Committee print are reproduced in this appendix. Figures for earlier key years, although shown elsewhere in this volume, have been left in the tables in order to facilitate comparison of the recent changes with earlier trends. Estimates for the year 1966 have also been included in these tables.

Although 1966 was not a major cycle peak, it did precede the “minirecession” of 1967 and is a “subcycle” peak year. More importantly, with the perspective gained by the subsequent decade, 1966 appears to mark the beginning of a new epoch or subperiod of American economic history. It saw the beginning of a marked acceleration in the growth rate of the labor force, a deceleration of productivity advance, an acceleration of inflation, and, as we shall see, the beginning of a decline in the ratio of total investment to adjusted GNP which continued from 1969 through 1973 (the most recent cycle peak year).

Instead of reproducing the text of the Joint Committee print, which repeats the description of earlier trends contained in this volume (and has a policy orientation), we shall merely call attention to the more important tendencies between 1966 and 1973 in the formation and stocks of total capital and associated variables.

Table C-1 shows the conventional gross investment estimates in

1. See footnote 14, p. xxv.

relation to GNP, in current and constant dollars, on the old as well as the revised bases. Whereas the ratio of gross investment to product dropped between 1966 and 1969, it recovered between 1969 and 1973. On the revised basis, the investment ratio was slightly above 1966 in both current and constant dollars.

For calculating the ratio of total investment to GNP, it was necessary to extend the adjustments of GNP for consistency with the expanded investment estimates through 1973. As shown in Table C-2, adjusted GNP from 1969 to 1973 continued its prior upward trend in relation to the official GNP estimates. In constant dollars, the ratio leveled out at around 132 percent.

The total gross investment estimates are presented in Table C-3. In the first column, it is shown that after rising from around 43 percent of adjusted GDP in 1929 and 1948 to 50.5 percent in 1966, the total gross domestic investment ratio dropped to 49.0 percent in 1969 and further to 48.5 percent by 1973. The decline from 1966 to 1969 was concentrated in the tangibles, but from 1969 to 1973 it was the intangibles that pulled the aggregate ratio down further—particularly the relative decline in outlays for R&D and education and training.

With regard to the sectoral composition of gross domestic investment, the relative decline after 1966 came in the business and public sectors, as shown in Table C-4. In the business sector, the ratio of disposable income (cash flow) to gross product dropped from 12.5 percent in 1966 to 9.3 percent in 1973, reflecting declining profit margins due to macroeconomic policies designed to combat accelerating inflation. Although net business borrowing increased substantially over this period, it was not enough to counteract the decline of internally generated funds, and the ratio of business total investment to adjusted GNP dropped by almost one percentage point. The disposable income of governments (revenues less transfers) also declined between 1966 and 1973, by 2½ percentage points, reversing its prior upward trend. Since the ratio of total public investment to disposable income was only fractionally higher in 1973 than in 1966, the investment/product ratio dropped by more than a percentage point.

Disposable personal income reversed its decline as a fraction of GNP in 1966, rising from 63 percent to almost 69 percent in 1973. But households and nonprofit institutions reduced the proportion of disposable income devoted to total investment, and the investment/product ratio remained quite steady at around 26½ percent.

Reflecting the lagged effect of investment on stocks of capital, the rate of increase in real total gross national wealth reached a high point in the 1966–1969 subperiod with an average annual rate of 4.0 percent. (See Table C-5.) This exceeded fractionally the rate of increase in real adjusted GNP, bringing to a halt the downward trend in the national

wealth coefficient. In the 1969–1973 subperiod, the average rate of increase in real total GNP slowed a bit to 3.8 percent a year. But the growth rate of real adjusted GNP also slowed, and the real total GNP/GNP ratio rose fractionally from 8.4 to 8.5. This suggests that the growth in total capital productivity declined after 1966. But, as explained in the text, it is more meaningful to compute productivity ratios for the private domestic economy than for the total.

Looking at real product in relation to real tangible capital alone for the business economy (Table C-6, line 6), it can be seen that the average rate of increase in “tangible capital productivity” decelerated drastically from 1.7 percent a year in 1948–1966 to 0.2 percent in 1966–1973. The deceleration was not due to a slower growth of intangible capital relative to that of tangible capital, however. As shown in line 5 of the table, the ratio of total to tangible capital continued to increase after 1966 at about the same rate as before. And, as shown in Table C-7, the share of intangible capital in total wealth continued its upward trend, rising from almost 37 percent in 1966 to near 40 percent in 1973. In fact, when real gross product is related to real total gross wealth in the business sector, “total capital productivity” actually declined during 1966–73, in contrast to the one percent a year average rate of increase from 1948 to 1966!

The marked deceleration in productivity, based on this and other measures, appears to be due to a number of factors, as noted in the Joint Committee print (p. 9). The slower rate of growth after 1966 meant fewer opportunities for economies of scale, of course. The bulge in labor force growth after 1965 reduced the average experience of workers and slowed the growth of real product per worker for the time being, since compensation and value added are below average for young workers.

The rate of utilization of the labor force was lower in 1973 than in 1966 (4.9 percent unemployment versus 3.6 percent, respectively); yet there were capacity bottlenecks in many basic industries, e.g., steel, aluminum, paper, and petroleum. This suggests inadequate business tangible investment in the earlier years, and possibly some misallocation of investment. The inadequate amount, in view of the rapid growth of the labor force, is related to a declining net rate of return on investment, especially when adjustments to profits are made for revaluation of book depreciation charges to replacement cost. The declining rate of return reflects the use of macroeconomic policies to combat the accelerating inflation which, on balance, held increases in the price level below increases in unit costs. Some misallocation of investment probably resulted from the wage and price control programs from August 1971 to April 1974.

Further, the increasing amounts of investment required for envi-

ronmental protection and occupational health and safety reduced the proportion available for direct productive purposes. Since the benefits of these programs are not reflected in real product while the investments are reflected in the real capital measures, the programs tend to reduce increases in productivity as measured.

It also seems probable that the relative decline of research and development investments and the leveling out of the relative R&D stock (see Table C-7) tended to slow down productivity growth, since R&D is the fountainhead of scientific and technological advance.

Finally, there were various negative social tendencies, particularly in the latter 1960s, that probably reduced productivity growth. Examples are increasing drug use and crime, increased antiestablishment and antibusiness sentiment and a possible loosening of the work ethic. However, the development of social indicators has not yet reached the point where it permits quantification of the economic impacts of these and other social developments.

Table C-8 shows that both the gross and net rates of return on total capital stocks employed in the business economy declined significantly between 1966 and 1973. It will be recalled that the rates of return dropped from the high levels reached in 1948, which had reflected postwar capital shortages, until 1960. Then there was a temporary reversal between 1960 and 1966, although the 1966 rates were still well under the 1948 rates. But after 1966 the gross rates of return declined from 11.8 percent to 10.4 percent in 1973, while the net rates fell from 11.4 percent to 10.0 percent. The 1973 rates were back approximately at the level estimated for 1929. The rates of return on human capital continued to remain above those on nonhuman capital in the 1966–1973 subperiod. However, it is noteworthy that the rates of return on human capital continued their decline from 1969 to 1973, whereas the returns on nonhuman capital appeared to stabilize. As indicated in Table C-7, this was associated with an increase in the human proportion of total gross domestic wealth from 51.1 percent in 1969 to 52.3 percent in 1973—a stronger relative growth than in the preceding subperiod. Evidence of a decline in rates of return on specific types of human capital in recent years has been adduced in other studies.²

The decline in tangible, nonhuman investment between 1973 and 1975 is shown in Table C-1. If past experience is any guide, it is doubtful if intangible and human investment dropped at all during the recession. But our estimates of the formation and stocks of total capital end with 1973, so analysis of the current cycle must await another occasion.

2. See, for example, Richard R. Freeman, "Overinvestment in College Training?" in *The Journal of Human Resources*, X-3, 1975.

Table C-1. *Investment in Relation to Gross National Product*

Year	GROSS NATIONAL PRODUCT		GROSS INVESTMENT (DOMESTIC PLUS FOREIGN)		RATIOS	
	Unrevised (1)	Revised (2)	Unrevised (3)	Revised (4)	(3) ÷ (1) (5)	(4) ÷ (2) (6)
	(billions of current dollars)					
1929	103.1		17.0		16.5	
1948	257.6	259.1	47.9	47.8	18.6	18.4
1957	441.1	442.8	71.2	72.8	16.1	16.4
1966	749.9	753.0	123.9	126.1	16.5	16.7
1969	930.3	935.5	137.9	144.2	14.8	15.4
1973	1,294.9	1,306.3	209.4	220.2	16.2	16.9
(1975)		1,499.0		209.5		13.1
	(billions of constant, 1958 and 1972, dollars)					
1929	203.6		42.0		20.6	
1948	323.7	487.7	62.8	86.0	19.4	17.6
1957	452.5	680.9	72.3	102.7	16.0	15.1
1966	658.1	981.0	111.4	163.4	16.9	16.7
1969	725.6	1,078.8	109.7	170.3	15.1	15.8
1973	839.2	1,233.4	138.2	207.1	16.5	16.8
(1975)		1,186.4		149.1		12.6

NOTE: The estimates contained in the Joint Committee print and in the rest of the present volume were based on the unrevised BEA estimates. Revised estimates appeared in the January 1976 *Survey of Current Business*, and the constant dollar revised estimates were shifted from a 1958 to a 1972 base. Both sets of estimates are shown here for the overlapping years.

Table C-2. Adjustments of Commerce Department Estimates of GNP for Consistency with Total Investment and Capital Estimates (in billions of dollars)

	1969	1973
Current dollars:		
GNP commerce concept	929.1	1,294.9
Plus:		
Personal sector imputations:		
Student compensation	92.3	148.1
Frictional unemployment	16.0	24.1
Rentals on household capital	100.1	138.5
Rentals on institutional capital	5.7	8.5
Business: Investments charged to current account:		
Tangible	2.3	3.3
Intangible	35.4	45.6
General governments: Imputed rentals on public capital	67.0	91.2
Equals: Adjusted GNP	1,247.9	1,754.3
Ratio to Commerce GNP	1.343	1.355
Constant 1958 dollars:		
Commerce GNP	724.7	839.2
Adjusted GNP	957.2	1,104.5
Ratio	1.321	1.316

Table C-3. Total Gross Investment, by Type, U.S. Domestic Economy (in billions of dollars and percentages; selected years)

	INTANGIBLE INVESTMENTS						Tangibles Total
	Grand Total	Total	Education and Training	Health and Safety	Mobility	R&D	
Billions of current dollars:							
1929	55.0	15.7	11.0	1.9	2.5	0.3	39.2
1948	139.9	45.0	31.0	5.2	6.6	2.4	94.9
1951	272.0	92.7	61.4	10.6	10.5	10.3	179.2
1966	495.8	198.1	137.4	21.4	17.0	22.3	297.7
1969	611.7	267.8	192.4	27.9	21.3	26.2	344.0
1973	851.0	369.6	262.6	45.9	31.0	30.1	481.4
Percent distribution of total gross investment:							
1929	43.1 ^a	28.5	20.0	3.5	4.6	.5	71.5
1948	42.7 ^a	32.1	22.0	3.7	4.7	1.6	67.9
1957	47.6 ^a	34.0	22.5	4.0	3.8	3.8	66.0
1966	50.5 ^a	40.0	27.7	4.3	3.4	4.5	60.0
1969	49.0 ^a	43.8	31.5	4.6	3.5	4.3	56.2
1973	48.5 ^a	43.4	30.9	5.4	3.6	3.5	56.6

^aPercent of adjusted GNP.

Table C-4. Total Gross Investment, by Domestic Sector, in Relation to Gross Product and Sectoral Disposable Income (percentages, selected peak years, 1929–73)

	1929	1948	1957	1966	1969	1973
Persons:						
DI/GNP	78.8	70.4	68.5	63.0	67.0	68.8
Inv./DI	33.2	35.2	37.3	41.9	39.4	38.5
Inv./GNP	26.1	24.8	25.5	26.4	26.5	26.5
Business:						
DI/GNP	10.0	10.2	10.1	12.5	9.5	9.3
Inv./DI	124.4	123.8	109.5	102.4	123.9	128.0
Inv./GNP	12.4	12.6	11.1	12.8	11.8	11.9
Governments:						
DI/GNP	10.4	18.7	20.9	24.2	23.4	21.7
Inv./DI	44.3	28.6	52.2	46.3	48.1	46.5
Inv./GNP	4.6	5.2	10.9	11.2	11.3	10.1

Note: DI = Disposable income of each sector, equals gross income earned from current production plus transfers (including taxes, in the case of governments) received from other sectors less transfer (and tax) payments. Inv. = Total gross investment, both tangible and intangible, of each sector. GNP = Sum of disposable income of each sector (including rest-of-the-world, not shown here) plus the statistical discrepancy between income and product.

Table C-5. Total U.S. Cross National Wealth and Product, Selected Years, 1929–73 (dollar amount in billions)

	Current	Price Deflators (indexes, 1958=100)	Constant
A—Absolute levels			
Adjusted GNP:			
1929	\$127	50.5	\$252
1948	328	77.9	421
1966	983	114.8	856
1969	1,248	130.4	957
1973	1,754	158.8	1,105
Total GNW:			
1929	1,203	45.4	2,648
1948	3,012	76.0	3,964
1966	8,518	118.5	7,187
1969	10,907	135.2	8,070
1973	15,641	166.7	9,383

(cont.)

Table C-5. (Completed)

	Current	Price Deflators (indexes, 1958=100)	Constant
B—Average annual percentage rates of change			
Adjusted GNP:			
1929–73	6.1	2.7	3.4
1929–48	5.1	2.3	2.7
1948–66	6.4	2.3	4.0
1966–69	8.3	4.3	3.8
1969–73	8.9	5.1	3.6
Total GNW:			
1929–73	6.0	3.0	2.9
1929–48	4.9	2.7	2.1
1948–66	6.0	2.6	3.3
1966–69	8.6	4.5	4.0
1969–73	9.4	5.4	3.8
C—Ratios, GNW/GNP			
Total GNW/GNP:			
1929	9.4	.90	10.5
1948	9.2	.98	9.4
1966	8.7	1.03	8.4
1969	8.7	1.04	8.4
1973	8.9	1.05	8.5

Table C-6. Major Components of U.S. Economic Growth (private domestic business economy, average annual percentage rates of change)

	1948–66	1966–73
1. Real adjusted gross product	4.1	3.5
2. Real gross capital stock—total	3.1	4.1
3. Tangible capital	2.4	3.3
4. Intangible capital	4.1	5.2
5. Ratio: real total capital over real tangible capital (2–3)	.7	.8
6. Tangible capital productivity (1–3)	1.7	.2
7. Total capital productivity (1–2)	1.0	–.6

Table C-7. Composition of Total Gross Domestic Wealth (by type and by sector; selected years)

Year	TANGIBLE CAPITAL			INTANGIBLE CAPITAL		
	Total	Human	Nonhuman	Total	Human	Nonhuman (R&D)
A. Percentage distribution by major type:						
1929	76.8	24.5	52.3	23.2	23.0	0.2
1948	73.0	21.3	51.7	27.0	26.4	0.6
1957	68.9	18.1	50.8	31.1	29.7	1.4
1966	63.2	16.3	46.9	36.8	34.3	2.5
1969	61.5	15.2	46.2	38.5	35.9	2.6
1973	60.2	15.1	45.1	39.8	37.2	2.6
B. Percentage distribution, by major sectors:						
Year	Personal	Business	Governments	Addendum: Net Foreign Claims as Percent of GDW		
1929	58.0	30.6	11.4	1.4		
1948	56.2	22.4	21.4	1.3		
1957	55.9	22.6	21.4	.9		
1966	55.4	21.9	22.7	.8		
1969	54.9	21.6	23.5	.6		
1973	55.5	21.3	23.2	.4		

Table C-8. *Rates of Return on Total Capital Stocks Employed—U.S. Private Domestic Business Economy (in percentages; selected peak years)*

Year	Total	Human	Nonhuman
A. Cross rates of return:			
1929	10.2	11.7	9.2
1948	12.1	12.2	12.0
1953	12.1	13.5	10.8
1957	11.4	12.7	10.1
1960	10.0	12.3	9.7
1966	11.8	12.2	11.4
1969	10.8	11.7	9.9
1973 ^a	10.4	10.8	10.1
B. Net rates of return:			
1929	10.0	10.1	10.0
1948	13.4	12.6	14.2
1953	13.1	14.8	11.4
1957	11.6	13.4	9.9
1960	11.0	12.9	9.2
1966	11.4	12.8	10.7
1969	10.6	12.2	8.9
1973 ^a	10.0	11.2	8.8

^aPreliminary.